

## Purifoy, Tiffany

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**From:** Chappell, Linda  
**Sent:** Tuesday, July 08, 2014 11:32 AM  
**To:** Kathy Fallon Lambert;Hubbell, Bryan;CurryBrown, Amanda  
**Cc:** Charles T Driscoll Jr;Maureen Hale;Jonathan Buonocore;Jonathan Buonocore  
**Subject:** RE: Conference call

**Follow Up Flag:** Follow up  
**Flag Status:** Completed

Hi Kathy – The best day for me is Monday, 7/14 from 12:30-2:30. Is 2:30 correct as ending time? I am unavailable on Thursday and Friday 7/17 or 7/18. I have included Amanda CurryBrown in this email. She will be lead for the RIA for the CPP final rule. If Bryan and Amanda are available on Thursday or Friday and these are best dates for others, please meet without me. Thank you.

Linda M. Chappell Ph.D.  
Air Economics Group, OAQPS, US EPA  
109 TW Alexander Drive, Mail Code C439-02  
Research Triangle Park, NC 27711  
telephone 919-541-2864; 919-541-0839; email- [chappell.linda@epa.gov](mailto:chappell.linda@epa.gov)

**From:** Kathy Fallon Lambert [<mailto:klambert01@fas.harvard.edu>]  
**Sent:** Tuesday, July 08, 2014 11:14 AM  
**To:** Hubbell, Bryan; Chappell, Linda  
**Cc:** Charles T Driscoll Jr; Maureen Hale; Jonathan Buonocore; Jonathan Buonocore  
**Subject:** Conference call

Dear Bryan and Linda,

Do any of the following dates and time slots work for you for a conference call with our team to discuss methods for our next set of analyses:

Monday, July 14 12:30 - 12:30 pm  
Thursday, July 17 10 am - 1 pm  
Friday, July 18 10 am - noon

Also, do you have IPM results for illustrative cases of proposed carbon standard? If so, would it be possible to get results for emissions (all pollutants) and generation (in TWH for all sources) for the year 2020?

Many thanks,  
Kathy

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Kathy Fallon Lambert  
Director of the Science & Policy Integration Project  
Harvard Forest, Harvard University  
Office: 802-436-1000  
Cell: (b) (6)  
[klambert01@fas.harvard.edu](mailto:klambert01@fas.harvard.edu)

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**From:** Kathy Fallon Lambert <klambert01@fas.harvard.edu>  
**Sent:** Tuesday, July 08, 2014 12:06 PM  
**To:** Chappell, Linda  
**Cc:** Hubbell, Bryan; CurryBrown, Amanda; Charles T Driscoll Jr; Maureen Hale; Jonathan Buonocore; Jonathan Buonocore  
**Subject:** Re: Conference call

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On Tue, Jul 8, 2014 at 11:32 AM, Chappell, Linda <[Chappell.Linda@epa.gov](mailto:Chappell.Linda@epa.gov)> wrote:

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**From:** Jonathan Buonocore <jjb194@mail.harvard.edu>  
**Sent:** Tuesday, July 08, 2014 12:38 PM  
**To:** Kathy Fallon Lambert  
**Cc:** Chappell, Linda;Hubbell, Bryan;CurryBrown, Amanda;Charles T Driscoll Jr;Maureen Hale;Jonathan Buonocore  
**Subject:** Re: Conference call

Any time between 12:30 and 2:30 on that day will work for me.

Thank you,

- Jonathan

Jonathan Buonocore | Research Fellow  
Center For Health and the Global Environment | Harvard School of Public Health  
Landmark Center 4th Floor West, Suite 415  
401 Park Drive, PO Box 15677  
Boston, MA 02215  
P: 617-384-5663 | F: 617-384-8585 | E: [jbuonocore@mail.harvard.edu](mailto:jbuonocore@mail.harvard.edu)

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**From:** CurryBrown, Amanda  
**Sent:** Wednesday, July 09, 2014 6:36 AM  
**To:** Kathy Fallon Lambert;Chappell, Linda  
**Cc:** Hubbell, Bryan;Charles T Driscoll Jr;Maureen Hale;Jonathan Buonocore;Jonathan Buonocore  
**Subject:** RE: Conference call

Unfortunately, I'll be on travel next week and won't be able to participate. As long as Linda is available, you should go ahead and meet without me.

In answer to your question about IPM results, all of the available information should be up on this site:

<http://www.epa.gov/airmarkets/powersectormodeling/cleanpowerplan.html>

**From:** Kathy Fallon Lambert [mailto:klambert01@fas.harvard.edu]  
**Sent:** Tuesday, July 08, 2014 10:32 PM  
**To:** Chappell, Linda  
**Cc:** Hubbell, Bryan; CurryBrown, Amanda; Charles T Driscoll Jr; Maureen Hale; Jonathan Buonocore; Jonathan Buonocore  
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**Cc:** Hubbell, Bryan; CurryBrown, Amanda; Charles T Driscoll Jr; Maureen Hale; Jonathan Buonocore; Jonathan Buonocore; Lamson, Amy  
**Subject:** RE: Conference call

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**From:** CurryBrown, Amanda  
**Sent:** Thursday, July 10, 2014 9:33 AM  
**To:** Chappell, Linda;Kathy Fallon Lambert  
**Cc:** Hubbell, Bryan;Charles T Driscoll Jr;Maureen Hale;Jonathan Buonocore;Jonathan Buonocore;Lamson, Amy;Macpherson, Alex  
**Subject:** RE: Conference call

Hi Kathy,

Could you also include Alex Macpherson (copied above) on the invitation for this meeting? He is in my group and is going to be covering CPP issues while I'm away from the office. He is available to meet on Monday in the timeframe proposed.

Thanks!

Amanda

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**Sent:** Thursday, July 10, 2014 9:56 AM  
**To:** CurryBrown, Amanda; Kathy Fallon Lambert  
**Cc:** Hubbell, Bryan; Charles T Driscoll Jr; Maureen Hale; Jonathan Buonocore; Jonathan Buonocore; Lamson, Amy; Macpherson, Alex; Wayland, Robertj; Hutson, Nick  
**Subject:** RE: Conference call

Hi Kathy – A couple of other individuals from EPA would like to be included in the meeting as well – Robert J Wayland (Bob) and Nick Hutson. Thank you.

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[klambert01@fas.harvard.edu](mailto:klambert01@fas.harvard.edu)

## Purifoy, Tiffany

---

**From:** Kathy Fallon Lambert <klambert01@fas.harvard.edu>  
**Sent:** Thursday, July 10, 2014 2:39 PM  
**To:** Chappell, Linda; Charles T Driscoll Jr; Jonathan Buonocore; Steve Reid  
**Cc:** CurryBrown, Amanda; Hubbell, Bryan; Maureen Hale; Jonathan Buonocore; Lamson, Amy; Macpherson, Alex; Wayland, Robertj; Hutson, Nick  
**Subject:** Re: Conference call

Hi everyone,

We are all set for a 1-hour conference call on Monday the 14th at 12:30 pm ET.

Conference call information:

Dial: (b) (6) #

Passcode: (b) (6) #

We will provide follow-up information on how to access the slides. Even though we have some slides to share, we very much hope this will be a two-way conversation rather than a 1-way presentation.

Best regards,  
Kathy

--

Kathy Fallon Lambert  
Director of the Science & Policy Integration Project  
Harvard Forest, Harvard University  
Office: 802-436-1000  
Cell: (b) (6)  
[klambert01@fas.harvard.edu](mailto:klambert01@fas.harvard.edu)

On Thu, Jul 10, 2014 at 9:56 AM, Chappell, Linda <[Chappell.Linda@epa.gov](mailto:Chappell.Linda@epa.gov)> wrote:

Hi Kathy – A couple of other individuals from EPA would like to be included in the meeting as well – Robert J Wayland (Bob) and Nick Hutson. Thank you.

Linda M. Chappell Ph.D.

Air Economics Group, OAQPS, US EPA

109 TW Alexander Drive, Mail Code C439-02

Research Triangle Park, NC 27711

telephone [919-541-2864](tel:919-541-2864); [919-541-0839](tel:919-541-0839); email- [chappell.linda@epa.gov](mailto:chappell.linda@epa.gov)

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**From:** CurryBrown, Amanda  
**Sent:** Thursday, July 10, 2014 9:33 AM  
**To:** Chappell, Linda; Kathy Fallon Lambert  
**Cc:** Hubbell, Bryan; Charles T Driscoll Jr; Maureen Hale; Jonathan Buonocore; Jonathan Buonocore; Lamson, Amy; Macpherson, Alex  
**Subject:** RE: Conference call

Hi Kathy,

Could you also include Alex Macpherson (copied above) on the invitation for this meeting? He is in my group and is going to be covering CPP issues while I'm away from the office. He is available to meet on Monday in the timeframe proposed.

Thanks!

Amanda

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**From:** Chappell, Linda  
**Sent:** Wednesday, July 09, 2014 9:47 AM  
**To:** Kathy Fallon Lambert  
**Cc:** Hubbell, Bryan; CurryBrown, Amanda; Charles T Driscoll Jr; Maureen Hale; Jonathan Buonocore; Jonathan Buonocore; Lamson, Amy  
**Subject:** RE: Conference call

Hi Kathy – Bryan Hubbell, Amy Lamson and I will be able to meet with you on Monday 7/14 for an hour sometime between 12:30 and 2:30, if this time works for everyone else. Amanda is not available next week. Thank you.

Linda M. Chappell Ph.D.

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**From:** Kathy Fallon Lambert [<mailto:klambert01@fas.harvard.edu>]

**Sent:** Tuesday, July 08, 2014 10:32 PM

**To:** Chappell, Linda

**Cc:** Hubbell, Bryan; CurryBrown, Amanda; Charles T Driscoll Jr; Maureen Hale; Jonathan Buonocore; Jonathan Buonocore

**Subject:** Re: Conference call

Bryan and Amanda,

Which of the dates below work for your for a 1-hour phone call? Several folks are learning toward Monday the 14th between 12:30 and 2:30,

Thanks,

On Tue, Jul 8, 2014 at 11:32 AM, Chappell, Linda <[Chappell.Linda@epa.gov](mailto:Chappell.Linda@epa.gov)> wrote:

Hi Kathy – The best day for me is Monday, 7/14 from 12:30-2:30. Is 2:30 correct as ending time? I am unavailable on Thursday and Friday 7/17 or 7/18. I have included Amanda CurryBrown in this email. She will be lead for the RIA for the CPP final rule. If Bryan and Amanda are available on Thursday or Friday and these are best dates for others, please meet without me. Thank you.

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**Sent:** Tuesday, July 08, 2014 11:14 AM

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**Cc:** Charles T Driscoll Jr; Maureen Hale; Jonathan Buonocore; Jonathan Buonocore

**Subject:** Conference call

Dear Bryan and Linda,

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Monday, July 14 12:30 - 12:30 pm

Thursday, July 17 10 am - 1 pm

Friday, July 18 10 am - noon

Also, do you have IPM results for illustrative cases of proposed carbon standard? If so, would it be possible to get results for emissions (all pollutants) and generation (in TWH for all sources) for the year 2020?

Many thanks,

Kathy

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Kathy Fallon Lambert

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## Purifoy, Tiffany

---

**From:** Kathy Fallon Lambert <klambert01@fas.harvard.edu>  
**Sent:** Sunday, July 13, 2014 10:01 PM  
**To:** Chappell, Linda; Charles T Driscoll Jr; Steve Reid; Capps, Shannon; Levy, Jonathan I; Joel schwartz; Joel Schwartz  
**Cc:** CurryBrown, Amanda; Hubbell, Bryan; Maureen Hale; Jonathan Buonocore; Lamson, Amy; Macpherson, Alex; Wayland, Robertj; Hutson, Nick  
**Subject:** Conference call Monday 14th at 12:30  
**Attachments:** EPA July 14 14.pdf

Just a reminder that we have a 1-hour conference call on Monday at 12:30 pm ET. Please find a pdf of the slide deck attached. We will walk through these over the phone and reference the slide numbers as we go. As you will see, several of the slides are intended to stimulate discussion.

Conference call information:

Dial: (b) (6) #

Passcode: (b) (6)

Best regards,  
Kathy

--

Kathy Fallon Lambert  
Director of the Science & Policy Integration Project  
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## Purifoy, Tiffany

---

**From:** Charles T Driscoll Jr <ctdrisco@syr.edu>  
**Sent:** Tuesday, July 15, 2014 7:57 PM  
**To:** Kurlansky, Ellen  
**Subject:** ICMGP 2017  
**Attachments:** removed.txt

Ellen, I hope all is well. We have been busy with our co-benefits analysis on the carbon standard. We have been giving briefings to a number of groups. This has been much more successful than I had originally envisioned. There seems to be considerable interest in our analysis.

I wanted to see if I could arrange a short call with you to discuss fund raising for ICMGP2017. We are making some progress on the planning for this meeting but it would help if I could raise a little money to help pay for some initial expenses. I wanted to brainstorm with you about how to go about this.

I am fairly open Thursday and Friday, and I have some time tomorrow.

Cheers,

Charley

Charles T. Driscoll, Jr, PhD, NAE  
Distinguished Professor and University Professor of Environmental  
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Department of Civil and Environmental Engineering  
Syracuse University  
151 Link Hall  
Syracuse, NY 13244  
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[ctdrisco@syr.edu](mailto:ctdrisco@syr.edu)

Website: <http://www.lcs.syr.edu/faculty/driscoll/personal/index.asp>



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[www.researchgate.net/profile/Charles\\_Driscoll](http://www.researchgate.net/profile/Charles_Driscoll)



## Purifoy, Tiffany

---

**From:** Kurlansky, Ellen  
**Sent:** Tuesday, July 15, 2014 10:46 PM  
**To:** Charles T Driscoll Jr  
**Subject:** Re: ICMGP 2017  
**Attachments:** removed.txt

Charley, I would be happy to do that. I am at NARUC until Thursday and then I have to play catch up. Can we talk on Friday. Maybe around 10:00? Or suggest another time?

Sent from my BlackBerry 10 smartphone.

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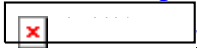
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## Purifoy, Tiffany

---

**From:** Kurlansky, Ellen  
**Sent:** Thursday, July 17, 2014 12:24 PM  
**To:** Charles T Driscoll Jr  
**Subject:** RE: ICMGP 2017

Charley, Can we make it 10:15? I am sorry, I don't have complete control of my calendar. I'll call you if you'd rather. Send me a phone number? Or you can call at the number below. Talk to you then. Ellen

Ellen Kurlansky  
Office of Air and Radiation  
U.S. Environmental Protection Agency  
1200 Pennsylvania Avenue NW  
Washington, DC 20460

202-564-1669

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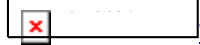
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## **Purifoy, Tiffany**

---

**From:** Kurlansky, Ellen  
**Sent:** Monday, August 25, 2014 10:52 AM  
**To:** Kathy Fallon Lambert; Charles T Driscoll Jr  
**Subject:** fyi  
**Attachments:** Thompson et a. 2014.pdf

Kathy and Charley, Some-one just sent this to me. You may have already seen it but it is pretty new. I hope you both are doing well. Ellen

Ellen Kurlansky  
Office of Air and Radiation  
U.S. Environmental Protection Agency  
1200 Pennsylvania Avenue NW  
Washington, DC 20460

202-564-1669

# Long-Term Exposure to Traffic Emissions and Fine Particulate Matter and Associations with Lung Function in the Framingham Heart Study

**Date:** Wednesday, October 29<sup>th</sup>, 2014

**Time:** 2:00 – 3:00 PM EDT

Please join us for our Work-In-Progress Webinar for the Clean Air Research Centers. This month's WIP webinar will be hosted by the Harvard Center. Dr. Mary Rice will present.

Dr. Rice is a pulmonary critical care physician at Beth Israel Deaconess Medical Center studying associations between short- and long-term ambient pollution exposures and pulmonary outcomes. She will be presenting her ongoing work in the Framingham Heart Study.

**Access the webinar here** (sign in as a Guest using your first and last name):

<https://epa.connectsolutions.com/r2234q5f482/>

**Please use this conference line for your audio:**

Dial: (b) (6)

Code: (b) (6)

Contact: Vito Ilacqua (703.347.0261, [ilacqua.vito@epa.gov](mailto:ilacqua.vito@epa.gov) )



## Purifoy, Tiffany

---

**From:** Kathy Fallon Lambert <klambert01@fas.harvard.edu>  
**Sent:** Friday, November 07, 2014 8:59 AM  
**To:** Charles T Driscoll Jr; Pamela Templer; Rob Pinder; Capps, Shannon; Herrick, Jeffrey  
**Cc:** Weiss, Marissa  
**Subject:** ozone analysis for carbon scenarios

Dear Rob, Shannon, and Jeff (and Pam and Charley),

We recently completed the W126 calculations for the recent trends and 3 scenarios for power plant carbon standards. We would like to follow back up with you by phone to discuss possible next steps in this analysis and what role you might be able to play.

Assuming you are interested, my colleague Marissa Weiss (copied here) will set and circulate a doodle poll.

We are excited to move this piece forward along with on-going analyses of visibility and acidification benefits.

Best regards,  
Kathy

--

Kathy Fallon Lambert  
Science & Policy Integration Project Director  
Harvard Forest, Harvard University  
Director, Science Policy Exchange  
Office: 802-436-1000  
Cell: (b) (6)  
[klambert01@fas.harvard.edu](mailto:klambert01@fas.harvard.edu)

[www.science-policy-exchange.org](http://www.science-policy-exchange.org)

## **Purifoy, Tiffany**

---

**From:** Weiss, Marissa <marissaweiss@fas.harvard.edu>  
**Sent:** Friday, November 07, 2014 9:33 AM  
**To:** Charles T Driscoll Jr; Pamela Templer; Capps, Shannon; Rob Pinder; Herrick, Jeffrey  
**Cc:** Lambert, Kathleen  
**Subject:** Re: ozone analysis for carbon scenarios

Dear Rob, Shannon, Jeff, Pam, and Charley -

The Doodle Poll for a phone call on either Nov 24, Nov 25, or Nov 26 is now available here:  
<http://doodle.com/7pm7me8b96bubtk2>

Thanks,  
Marissa

---

Marissa Weiss  
Program Coordinator  
Science Policy Exchange  
Harvard Forest

[marissaweiss@fas.harvard.edu](mailto:marissaweiss@fas.harvard.edu)  
office: 978-756-6151  
cell: 607-272-1419

[science-policy-exchange.org](http://science-policy-exchange.org)  
@scixpolicy

On Nov 7, 2014, at 8:58 AM, Kathy Fallon Lambert wrote:

Dear Rob, Shannon, and Jeff (and Pam and Charley),

We recently completed the W126 calculations for the recent trends and 3 scenarios for power plant carbon standards. We would like to follow back up with you by phone to discuss possible next steps in this analysis and what role you might be able to play.

Assuming you are interested, my colleague Marissa Weiss (copied here) will set and circulate a doodle poll.

We are excited to move this piece forward along with on-going analyses of visibility and acidification benefits.

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## **Purifoy, Tiffany**

---

**From:** Weiss, Marissa <marissaweiss@fas.harvard.edu>  
**Sent:** Friday, November 21, 2014 3:40 PM  
**To:** Shannon Leigh Capps; rwpinder@gmail.com; Lambert, Kathleen; Pamela H Templer; Charles Driscoll; Maureen Hale; Herrick, Jeffrey  
**Subject:** Ozone Call Postponed: New Poll for Week of 12/1

Dear Charley, Pam, Rob, Shannon, and Jeff -

Please find a new poll for the ozone call - this time we're looking at the week of 12/1:

<http://doodle.com/wgapd7r9r5nd5i3v>

Thanks,  
Marissa

---

Marissa Weiss  
Program Coordinator  
Science Policy Exchange  
Harvard Forest

[marissaweiss@fas.harvard.edu](mailto:marissaweiss@fas.harvard.edu)

office: 978-756-6151

cell: (b) (6)

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@scixpolicy

## Purifoy, Tiffany

---

**From:** Kathy Fallon Lambert <klambert01@fas.harvard.edu>  
**Sent:** Monday, November 24, 2014 9:13 AM  
**To:** Weiss, Marissa  
**Cc:** Shannon Leigh Capps; rwpinder@gmail.com; Pamela H Templer; Charles Driscoll; Maureen Hale; Herrick, Jeffrey  
**Subject:** Re: Ozone Call Postponed: New Poll for Week of 12/1

Thanks, Marissa. I have filled it out and as soon as others are able, we will nail the date down for this call.

Thanks so much everyone!

Kathy

On Fri, Nov 21, 2014 at 3:39 PM, Weiss, Marissa <[marissaweiss@fas.harvard.edu](mailto:marissaweiss@fas.harvard.edu)> wrote:  
Dear Charley, Pam, Rob, Shannon, and Jeff -

Please find a new poll for the ozone call - this time we're looking at the week of 12/1:

<http://doodle.com/wgapd7r9r5nd5i3v>

Thanks,  
Marissa

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## **Purifoy, Tiffany**

---

**From:** Weiss, Marissa <marissaweiss@fas.harvard.edu>  
**Sent:** Wednesday, November 26, 2014 10:09 AM  
**To:** Lambert, Kathleen  
**Cc:** Shannon Leigh Capps; rwpinder@gmail.com; Pamela Templer; Charles Driscoll; Maureen Hale; Herrick, Jeffrey  
**Subject:** Ozone Call: Thursday 12/4 @ 10a

We have a new consensus for the re-scheduled ozone call:

Thursday December 4 at 10a.

(b) (6)

Passcode: (b) (6)

We'll circulate a reminder with the agenda and call-in info before the call.

Thanks,  
Marissa

---

Marissa Weiss  
Program Coordinator  
Science Policy Exchange  
Harvard Forest

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office: 978-756-6151

cell: (b) (6)

[science-policy-exchange.org](http://science-policy-exchange.org)

@scixpolicy



## **Purifoy, Tiffany**

---

**From:** Weiss, Marissa <marissaweiss@fas.harvard.edu>  
**Sent:** Tuesday, December 02, 2014 1:47 PM  
**To:** Lambert, Kathleen; Shannon Leigh Capps; rwpinder@gmail.com; Pamela Templer; Charles Driscoll; Maureen Hale; Herrick, Jeffrey  
**Subject:** Agenda for Ozone Call: Thursday 12/4 @ 10a

Reminder: Ozone project meeting (phone) - Thursday 12/4 at 10a (EST)

Call info:  
1866-890-3820  
Passcode: (b) (6)

Agenda:

1. W126 Analysis status / progress update
2. Plan how to analyze results and write paper

Thanks,  
Marissa

---

Marissa Weiss  
Program Coordinator  
Science Policy Exchange  
Harvard Forest

[marissaweiss@fas.harvard.edu](mailto:marissaweiss@fas.harvard.edu)  
office: 978-756-6151  
cell: 607-272-1419

[science-policy-exchange.org](http://science-policy-exchange.org)  
@scixpolicy

On Nov 26, 2014, at 10:09 AM, wrote:

We have a new consensus for the re-scheduled ozone call:

Thursday December 4 at 10a.

(b) (6)  
Passcode: (b) (6)

We'll circulate a reminder with the agenda and call-in info before the call.

Thanks,  
Marissa

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Program Coordinator  
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Harvard Forest

[marissaweiss@fas.harvard.edu](mailto:marissaweiss@fas.harvard.edu)

office: 978-756-6151

cell: (b) (6)

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@scixpolicy

On Nov 21, 2014, at 3:39 PM, wrote:

Dear Charley, Pam, Rob, Shannon, and Jeff -

Please find a new poll for the ozone call - this time we're looking at the week of 12/1:

<http://doodle.com/wgapd7r9r5nd5i3v>

Thanks,  
Marissa

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cell: (b) (6)

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@scixpolicy

## Purifoy, Tiffany

---

**From:** Rob Pinder <(b) (6) @gmail.com>  
**Sent:** Thursday, December 04, 2014 9:13 AM  
**To:** Weiss, Marissa  
**Cc:** Lambert, Kathleen; Shannon Leigh Capps; Pamela Templer; Charles Driscoll; Maureen Hale; Herrick, Jeffrey  
**Subject:** Re: Agenda for Ozone Call: Thursday 12/4 @ 10a

Hi everyone,

Unfortunately I am not going to be able to attend today's call. In the coming months, I don't think I can carve out the time to contribute to this analysis. But if there is a point where you would like some help reviewing or feedback, I am happy to contribute in that way.

Thanks,

- Rob

On Tue, Dec 2, 2014 at 1:47 PM, Weiss, Marissa <[marissaweiss@fas.harvard.edu](mailto:marissaweiss@fas.harvard.edu)> wrote:  
Reminder: Ozone project meeting (phone) - Thursday 12/4 at 10a (EST)

Call info:

(b) (6)

Passcode:

Agenda:

1. W126 Analysis status / progress update
2. Plan how to analyze results and write paper

Thanks,  
Marissa

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Marissa Weiss  
Program Coordinator  
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Thursday December 4 at 10a.

(b) (6)

Passcode: (b) (6)

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Marissa

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<http://doodle.com/wgapd7r9r5nd5i3v>

Thanks,  
Marissa

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@scixpolicy

## Purifoy, Tiffany

---

**From:** Kathy Fallon Lambert <klambert01@fas.harvard.edu>  
**Sent:** Thursday, December 04, 2014 10:42 AM  
**To:** Herrick, Jeffrey; Shannon Leigh Capps; Pamela Templer; Weiss, Marissa; Charles T Driscoll Jr  
**Subject:** Fwd: FW: W126 analysis  
**Attachments:** removed.txt; removed.txt

Here is a dropbox link to the W126 maps for sugar mapple:

<https://www.dropbox.com/sh/0j0xc9aurm4402j/AABke-EpzwTxdNYHpzfqMkVNa?dl=0>

----- Forwarded message -----

**From:** Kathy Fallon Lambert <[klambert01@fas.harvard.edu](mailto:klambert01@fas.harvard.edu)>  
**Date:** Thu, Dec 4, 2014 at 10:11 AM  
**Subject:** Fwd: FW: W126 analysis  
**To:** "Weiss, Marissa" <[marissaweiss@fas.harvard.edu](mailto:marissaweiss@fas.harvard.edu)>, Jeffrey Herrick <[Herrick.Jeffrey@epa.gov](mailto:Herrick.Jeffrey@epa.gov)>, Shannon Capps <(b) (6) [gmail.com](mailto:gmail.com)>

Here is the map for sugar maple that Charley and Habib plotted.

----- Forwarded message -----

**From:** Charles T Driscoll Jr <[ctdrisco@syrr.edu](mailto:ctdrisco@syrr.edu)>  
**Date:** Tue, Nov 11, 2014 at 11:17 AM  
**Subject:** FW: W126 analysis  
**To:** "Lambert, Kathleen" <[klambert01@fas.harvard.edu](mailto:klambert01@fas.harvard.edu)>, Pamela Templer <[ptempler@bu.edu](mailto:ptempler@bu.edu)>  
**Cc:** "Habibollah Fakhraei ([hfakhrae@syrr.edu](mailto:hfakhrae@syrr.edu))" <[hfakhrae@syrr.edu](mailto:hfakhrae@syrr.edu)>

Kathy and Pam, The w126 analysis is different than I was expecting. Sonoma did all the spatial calculations, for all trees and crops. Habib plotted the data for sugar maple as an example, which is attached. Interesting through they did not send the w126 files. I will ask Steve for this. We can plot up the remainder of the plant species if that is what we need. So the task will be easier than I realized.

Cheers,

Charley

Charles T. Driscoll, Jr, PhD, NAE

Distinguished Professor and University Professor of Environmental

Systems Engineering

Department of Civil and Environmental Engineering

Syracuse University

151 Link Hall

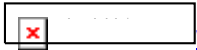
Syracuse, NY 13244

[315-443-3434](tel:315-443-3434) (phone)

[315-443-1243](tel:315-443-1243) (fax)

[ctdrisco@syr.edu](mailto:ctdrisco@syr.edu)

Website: <http://www.lcs.syr.edu/faculty/driscoll/personal/index.asp>



[www.twitter.com/ctdrisco](https://www.twitter.com/ctdrisco)



[www.researchgate.net/profile/Charles\\_Driscoll](https://www.researchgate.net/profile/Charles_Driscoll)



---

**From:** Habibollah Fakhraei [mailto:[hfakhrae@syr.edu](mailto:hfakhrae@syr.edu)]

**Sent:** Sunday, November 09, 2014 2:28 PM

**To:** Charles T Driscoll Jr

**Subject:** W126 analysis

Charley,

The data files that we have for W126 are crop yield loss and timber yield loss for the three scenarios plus reference case. In case of crop, yield loss is calculated for 5 species (i.e., corn, cotton, potato, soybean, wheat) and for the timber the yield loss is calculated for 11 types of trees (i.e., red maple, sugar maple, red alder, tulip poplar, ponderosa pine, eastern white pine, virginia pine, douglas fir, eastern cottonwood, quaking aspen, and black cherry). So for all of these species we are able to prepare GIS maps showing yield loss under different scenarios. For instance I chose sugar maple and prepared yield loss and difference in yield loss for the scenarios. Please find the attached maps and let me know which specie is more interested to be plotted,

Best,

Habib

--

Kathy Fallon Lambert  
Science & Policy Integration Project Director  
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## **Purifoy, Tiffany**

---

**From:** Kathy Fallon Lambert <klambert01@fas.harvard.edu>  
**Sent:** Thursday, December 04, 2014 11:28 AM  
**To:** Charles T Driscoll Jr; Pamela Templer; Weiss, Marissa; Shannon Leigh Capps; Herrick, Jeffrey  
**Subject:** Next steps

Thank you all for your time today. Here are the next steps we identified:

### Charley

Email to Janna and Davin about engaging with Shannon

### Shannon

Estimate of time to assist

### Jeff

1. Feedback on sugar maple maps
2. Clip from PDF of 2006 EPA
3. Ideas of other people who might be able to get involved to help with writing

--

Kathy Fallon Lambert  
Science & Policy Integration Project Director  
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## Purifoy, Tiffany

---

**From:** Herrick, Jeffrey  
**Sent:** Tuesday, December 09, 2014 11:14 AM  
**To:** Kathy Fallon Lambert; Shannon Leigh Capps; Pamela Templer; Weiss, Marissa; Charles T Driscoll Jr  
**Subject:** RE: FW: W126 analysis  
**Attachments:** Vegetation Risk excerpt EPA 2007\_O3\_staff\_paper Ch 7.pdf

Hello all,

I'm still looking into how much I can be involved in this project. Right now I'll just give a few thoughts in the context of what risk assessments that have been done.

Attached is an excerpt of Chapter 7 of the 2007 Ozone Staff Paper.

The full document can be found here:

[http://epa.gov/ttn/naaqs/standards/ozone/s\\_o3\\_cr\\_sp.html](http://epa.gov/ttn/naaqs/standards/ozone/s_o3_cr_sp.html)

-you will see that we did a "10% adjustment" for hourly exposures to seedlings in this section. I don't think you need to worry about that in your project. That was not done in the 2014 version of the Risk Assessment.

The Aug. 2014 O3 Risk Assessment for welfare can be found here. I didn't work on this one as directly. Maybe later I'll try to excerpt some relevant parts.

<http://epa.gov/ttn/naaqs/standards/ozone/data/20141021welfarearea.pdf>

### Sugar Maple Maps:

-I could not see the maps on Dropbox for a few days. I think there were still uploading from Kathy's computer. Sorry for the delay.

-I'm a little unclear about the scenarios that are presented. I just haven't been in the loop on the acronyms. It is probably not really important for me to understand.

-In the past, it was useful to present yield losses in terms of % loss in maps. Tons/acre is not a metric that would resonate with a lot of people. I suppose you could use that in table form. The numbers on the Sugar Maple maps are really small and have a lot of decimal places that are probably not necessary. It's not surprising the numbers are small because Sugar Maple is relatively insensitive to ozone. For the east, a better species to display would be Quaking Aspen or Black Cherry. For the west, Ponderosa Pine.

-I'm not sure what tree range maps you all used. Maybe from FIA? As you will see in 2007 excerpt I attached, we used the USGS Little maps for ranges.

<http://esp.cr.usgs.gov/data/little/>

However, these maps were created in 1970's.

-It looks like you may be getting some artifacts of the Air Quality model along the Great Lakes on some maps. I'm not sure since I don't have a map of the underlying air quality scenarios to look at.

### Suggestions for other writers for this project:

Art Chapelka, Auburn

<http://wp.auburn.edu/sfws/faculty-members/chappelka-art/>

Peter Woodbury, Cornell (He is a current member of the EPA Clean Air Scientific Advisory Committee for Ozone. I'm not sure if that precludes him from being a part of this project)  
<http://css.cals.cornell.edu/people/peter-woodbury>

I hope this was helpful.

-Jeff

**From:** Kathy Fallon Lambert [mailto:klambert01@fas.harvard.edu]  
**Sent:** Thursday, December 04, 2014 10:42 AM  
**To:** Herrick, Jeffrey; Shannon Leigh Capps; Pamela Templer; Weiss, Marissa; Charles T Driscoll Jr  
**Subject:** Fwd: FW: W126 analysis

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----- Forwarded message -----

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**Date:** Thu, Dec 4, 2014 at 10:11 AM  
**Subject:** Fwd: FW: W126 analysis  
**To:** "Weiss, Marissa" <[marissaweiss@fas.harvard.edu](mailto:marissaweiss@fas.harvard.edu)>, Jeffrey Herrick <[Herrick.Jeffrey@epa.gov](mailto:Herrick.Jeffrey@epa.gov)>, Shannon Capps (b) (6) <[@gmail.com](mailto:@gmail.com)>

Here is the map for sugar maple that Charley and Habib plotted.

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**Date:** Tue, Nov 11, 2014 at 11:17 AM  
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**To:** "Lambert, Kathleen" <[klambert01@fas.harvard.edu](mailto:klambert01@fas.harvard.edu)>, Pamela Templer <[ptempler@bu.edu](mailto:ptempler@bu.edu)>  
**Cc:** "Habibollah Fakhraei" <[hfakhrae@syrr.edu](mailto:hfakhrae@syrr.edu)> <[hfakhrae@syrr.edu](mailto:hfakhrae@syrr.edu)>

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Cheers,

Charley

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Systems Engineering

Department of Civil and Environmental Engineering

Syracuse University

151 Link Hall

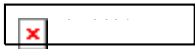
Syracuse, NY 13244

[315-443-3434](tel:315-443-3434) (phone)

[315-443-1243](tel:315-443-1243) (fax)

[ctdrisco@syr.edu](mailto:ctdrisco@syr.edu)

Website: <http://www.lcs.syr.edu/faculty/driscoll/personal/index.asp>



[www.twitter.com/ctdrisco](https://www.twitter.com/ctdrisco)



[www.researchgate.net/profile/Charles\\_Driscoll](http://www.researchgate.net/profile/Charles_Driscoll)



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**Subject:** W126 analysis

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## Purifoy, Tiffany

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**Sent:** Tuesday, December 09, 2014 1:39 PM  
**To:** Herrick, Jeffrey  
**Cc:** Shannon Leigh Capps; Pamela Templer; Weiss, Marissa; Charles T Driscoll Jr  
**Subject:** Re: FW: W126 analysis  
**Attachments:** removed.txt

Hi Jeff,

This is tremendously useful. I agree with the comment about presenting the information as a % change (gain, in this case) rather than as tons/acre. It is also useful to know something about the relative sensitivity of different species.

It looks like Shannon has a green light to help with this. If you could play some role, even if it is only as an internal reviewer, that would be great.

Thanks again for the great information.

Kathy

On Tue, Dec 9, 2014 at 11:14 AM, Herrick, Jeffrey <[Herrick.Jeffrey@epa.gov](mailto:Herrick.Jeffrey@epa.gov)> wrote:

Hello all,

I'm still looking into how much I can be involved in this project. Right now I'll just give a few thoughts in the context of what risk assessments that have been done.

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### Suggestions for other writers for this project:

Art Chapelka, Auburn

<http://wp.auburn.edu/sfws/faculty-members/chappelka-art/>

Peter Woodbury, Cornell (He is a current member of the EPA Clean Air Scientific Advisory Committee for Ozone. I'm not sure if that precludes him from being a part of this project)



<http://css.cals.cornell.edu/people/peter-woodbury>

I hope this was helpful.

-Jeff

**From:** Kathy Fallon Lambert [mailto:[klambert01@fas.harvard.edu](mailto:klambert01@fas.harvard.edu)]  
**Sent:** Thursday, December 04, 2014 10:42 AM  
**To:** Herrick, Jeffrey; Shannon Leigh Capps; Pamela Templer; Weiss, Marissa; Charles T Driscoll Jr  
**Subject:** Fwd: FW: W126 analysis

Here is a dropbox link to the W126 maps for sugar mapple:

<https://www.dropbox.com/sh/0j0xc9aurm4402j/AABke-EpzwTxdNYHpzfqMkVNa?dl=0>

----- Forwarded message -----

**From:** **Kathy Fallon Lambert** <[klambert01@fas.harvard.edu](mailto:klambert01@fas.harvard.edu)>  
**Date:** Thu, Dec 4, 2014 at 10:11 AM  
**Subject:** Fwd: FW: W126 analysis  
**To:** "Weiss, Marissa" <[marissaweiss@fas.harvard.edu](mailto:marissaweiss@fas.harvard.edu)>, Jeffrey Herrick <[Herrick.Jeffrey@epa.gov](mailto:Herrick.Jeffrey@epa.gov)>, Shannon Capps <(b) (6) [gmail.com](mailto:gmail.com)>

Here is the map for sugar maple that Charley and Habib plotted.

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From: **Charles T Driscoll Jr** <[ctdrisco@syr.edu](mailto:ctdrisco@syr.edu)>

Date: Tue, Nov 11, 2014 at 11:17 AM

Subject: FW: W126 analysis

To: "Lambert, Kathleen" <[klambert01@fas.harvard.edu](mailto:klambert01@fas.harvard.edu)>, Pamela Templer <[ptempler@bu.edu](mailto:ptempler@bu.edu)>

Cc: "Habibollah Fakhraei" ([hfakhrae@syr.edu](mailto:hfakhrae@syr.edu)) <[hfakhrae@syr.edu](mailto:hfakhrae@syr.edu)>

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Cheers,

Charley

Charles T. Driscoll, Jr, PhD, NAE

Distinguished Professor and University Professor of Environmental

Systems Engineering

Department of Civil and Environmental Engineering

Syracuse University

151 Link Hall

Syracuse, NY 13244

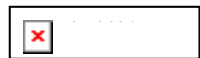
[315-443-3434](tel:315-443-3434) (phone)

[315-443-1243](tel:315-443-1243) (fax)

[ctdrisco@syr.edu](mailto:ctdrisco@syr.edu)

Website: <http://www.lcs.syr.edu/faculty/driscoll/personal/index.asp>

[www.twitter.com/ctdrisco](https://www.twitter.com/ctdrisco)



[www.researchgate.net/profile/Charles\\_Driscoll](http://www.researchgate.net/profile/Charles_Driscoll)



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**From:** Habibollah Fakhraei [mailto:[hfakhrae@syr.edu](mailto:hfakhrae@syr.edu)]  
**Sent:** Sunday, November 09, 2014 2:28 PM  
**To:** Charles T Driscoll Jr  
**Subject:** W126 analysis

Charley,

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Cell: (b) (6)

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## Purifoy, Tiffany

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**From:** Shannon Leigh Capps <Shannon.Capps@Colorado.EDU>  
**Sent:** Wednesday, December 10, 2014 6:51 PM  
**To:** Kathy Fallon Lambert; Herrick, Jeffrey  
**Cc:** Pamela Templer; Weiss, Marissa; Charles T Driscoll Jr  
**Subject:** Re: FW: W126 analysis

Yes, Jeff, thank you for your insight.

Regarding the crop production data, Rob and I compiled National Agricultural Statistics Service (NASS) data for 2007 and gridded it. For timber, Jesse Bash provided an updated gridded timber density file, which is based on the Biogenic Emissions Landuse Database (BELDv4) as well as USFS Forest Inventory and Analysis (FIA) data. I am fairly confident that these are the files used by STI, but I do not have access to the emails to confirm.

Thanks,  
Shannon

--

Shannon Capps  
Henze & Milford Groups  
University of Colorado Boulder

On December 9, 2014 at 11:38:41 AM, Kathy Fallon Lambert ([klambert01@fas.harvard.edu](mailto:klambert01@fas.harvard.edu)) wrote:

Hi Jeff,

This is tremendously useful. I agree with the comment about presenting the information as a % change (gain, in this case) rather than as tons/acre. It is also useful to know something about the relative sensitivity of different species.

It looks like Shannon has a green light to help with this. If you could play some role, even if it is only as an internal reviewer, that would be great.

Thanks again for the great information.

Kathy

On Tue, Dec 9, 2014 at 11:14 AM, Herrick, Jeffrey <[Herrick.Jeffrey@epa.gov](mailto:Herrick.Jeffrey@epa.gov)> wrote:

Hello all,

I'm still looking into how much I can be involved in this project. Right now I'll just give a few thoughts in the context of what risk assessments that have been done.

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Syracuse, NY 13244

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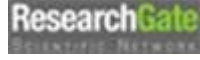


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Website: <http://www.lcs.syr.edu/faculty/driscoll/personal/index.asp>

[www.twitter.com/ctdrisco](https://www.twitter.com/ctdrisco)



[www.researchgate.net/profile/Charles\\_Driscoll](http://www.researchgate.net/profile/Charles_Driscoll)



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## Purifoy, Tiffany

---

**From:** Kathy Fallon Lambert <klambert01@fas.harvard.edu>  
**Sent:** Tuesday, January 13, 2015 8:49 PM  
**To:** Charles T Driscoll Jr  
**Cc:** Shannon Leigh Capps (Shannon.Capps@Colorado.EDU);Templer, Pamela H;Habibollah Fakhraei (hfakhrae@syr.edu);Herrick, Jeffrey  
**Subject:** Re: FW: w126 data extractions

Charley and Habib,

I don't have a sense for the magnitude change either, but the patterns follow what we'd expect for these scenarios. I think Jeff Herrick (who I have copied here) suggested displaying the values in terms of the percent change from the reference case. That might be more intuitive.

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Best,  
Kathy

On Tue, Jan 13, 2015 at 2:32 PM, Charles T Driscoll Jr <[ctdrisco@syr.edu](mailto:ctdrisco@syr.edu)> wrote:

Habib, Thanks.

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**To:** Charles T Driscoll Jr  
**Subject:** Re: w126 data extractions

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**From:** Shannon Leigh Capps <Shannon.Capps@Colorado.EDU>  
**Sent:** Tuesday, January 13, 2015 8:56 PM  
**To:** Charles T Driscoll Jr; Kathy Fallon Lambert  
**Cc:** Templer, Pamela H; Habibollah Fakhraei (hfakhrae@syr.edu); Herrick, Jeffrey  
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Thank you, Habib, Charley, Kathy.

Habib has provided the data I need for producing figures. I may need to confirm the source data (crops, trees) with STI before the text describing the calculations could be finalized, but this is certainly enough to start.

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Thanks,  
Shannon

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Shannon Capps  
Henze & Milford Groups  
University of Colorado Boulder

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**Subject:** Re: FW: w126 data extractions

That sounds great to me, Shannon.

Please feel free to be in direct contact with STI, but if you need any help just let me know.

Thanks!

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**To:** Herrick, Jeffrey  
**Cc:** Shannon Leigh Capps; Pamela Templer; Weiss, Marissa; Charles T Driscoll Jr  
**Subject:** Re: FW: W126 analysis  
**Attachments:** removed.txt

I thought I would resend these helpful links and text from Jeff so that they are at the fronts of our minds as we move into this next phase.

Thanks again,  
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-I could not see the maps on Dropbox for a few days. I think there were still uploading from Kathy's computer. Sorry for the delay.

-I'm a little unclear about the scenarios that are presented. I just haven't been in the loop on the acronyms. It is probably not really important for me to understand.

-In the past, it was useful to present yield losses in terms of % loss in maps. Tons/acre is not a metric that would resonate with a lot of people. I suppose you could use that in table form. The numbers on the Sugar Maple maps are really small and have a lot of decimal places that are probably not necessary. It's not surprising the numbers are small because Sugar Maple is relatively insensitive to ozone. For the east, a better species to display would be Quaking Aspen or Black Cherry. For the west, Ponderosa Pine.

-I'm not sure what tree range maps you all used. Maybe from FIA? As you will see in 2007 excerpt I attached, we used the USGS Little maps for ranges.

<http://esp.cr.usgs.gov/data/little/>

However, these maps were created in 1970's.

-It looks like you may be getting some artifacts of the Air Quality model along the Great Lakes on some maps. I'm not sure since I don't have a map of the underlying air quality scenarios to look at.

Suggestions for other writers for this project:

Art Chapelka, Auburn

<http://wp.auburn.edu/sfws/faculty-members/chappelka-art/>

Peter Woodbury, Cornell (He is a current member of the EPA Clean Air Scientific Advisory Committee for Ozone. I'm not sure if that precludes him from being a part of this project)

<http://css.cals.cornell.edu/people/peter-woodbury>

I hope this was helpful.

-Jeff

**From:** Kathy Fallon Lambert [mailto:[klambert01@fas.harvard.edu](mailto:klambert01@fas.harvard.edu)]  
**Sent:** Thursday, December 04, 2014 10:42 AM  
**To:** Herrick, Jeffrey; Shannon Leigh Capps; Pamela Templer; Weiss, Marissa; Charles T Driscoll Jr  
**Subject:** Fwd: FW: W126 analysis

Here is a dropbox link to the W126 maps for sugar mapple:

<https://www.dropbox.com/sh/0j0xc9aurm4402j/AABke-EpzwTxdNYHpzfqMkVNa?dl=0>

----- Forwarded message -----

**From:** Kathy Fallon Lambert <[klambert01@fas.harvard.edu](mailto:klambert01@fas.harvard.edu)>  
**Date:** Thu, Dec 4, 2014 at 10:11 AM  
**Subject:** Fwd: FW: W126 analysis  
**To:** "Weiss, Marissa" <[marissaweiss@fas.harvard.edu](mailto:marissaweiss@fas.harvard.edu)>, Jeffrey Herrick <[Herrick.Jeffrey@epa.gov](mailto:Herrick.Jeffrey@epa.gov)>, Shannon Capps <(b) (6) [gmail.com](mailto:gmail.com)>

Here is the map for sugar maple that Charley and Habib plotted.

----- Forwarded message -----

**From:** Charles T Driscoll Jr <[ctdrisco@syr.edu](mailto:ctdrisco@syr.edu)>  
**Date:** Tue, Nov 11, 2014 at 11:17 AM  
**Subject:** FW: W126 analysis  
**To:** "Lambert, Kathleen" <[klambert01@fas.harvard.edu](mailto:klambert01@fas.harvard.edu)>, Pamela Templer <[ptempler@bu.edu](mailto:ptempler@bu.edu)>  
**Cc:** "Habibollah Fakhraei" ([hfakhrae@syr.edu](mailto:hfakhrae@syr.edu)) <[hfakhrae@syr.edu](mailto:hfakhrae@syr.edu)>

Kathy and Pam, The w126 analysis is different than I was expecting. Sonoma did all the spatial calculations, for all trees and crops. Habib plotted the data for sugar maple as an example, which is attached. Interesting through they did not send the w126 files. I will ask Steve for this. We can plot up the remainder of the plant species if that is what we need. So the task will be easier than I realized.

Cheers,

Charley

Charles T. Driscoll, Jr, PhD, NAE

Distinguished Professor and University Professor of Environmental

Systems Engineering

Department of Civil and Environmental Engineering

Syracuse University

151 Link Hall

Syracuse, NY 13244

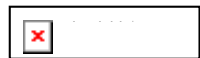
[315-443-3434](tel:315-443-3434) (phone)

[315-443-1243](tel:315-443-1243) (fax)

[ctdrisco@syr.edu](mailto:ctdrisco@syr.edu)

Website: <http://www.lcs.syr.edu/faculty/driscoll/personal/index.asp>

[www.twitter.com/ctdrisco](https://www.twitter.com/ctdrisco)



[www.researchgate.net/profile/Charles\\_Driscoll](http://www.researchgate.net/profile/Charles_Driscoll)



---

**From:** Habibollah Fakhraei [mailto:[hfakhrae@syr.edu](mailto:hfakhrae@syr.edu)]

**Sent:** Sunday, November 09, 2014 2:28 PM

**To:** Charles T Driscoll Jr

**Subject:** W126 analysis

Charley,

The data files that we have for W126 are crop yield loss and timber yield loss for the three scenarios plus reference case. In case of crop, yield loss is calculated for 5 species (i.e., corn, cotton, potato, soybean, wheat) and for the timber the yield loss is calculated for 11 types of trees (i.e., red maple, sugar maple, red alder, tulip poplar, ponderosa pine, eastern white pine, virginia pine, douglas fir, eastern cottonwood, quaking aspen, and black cherry). So for all of these species we are able to prepare GIS maps showing yield loss under different scenarios. For instance I chose sugar maple and prepared yield loss and difference in yield loss for the scenarios. Please find the attached maps and let me know which specie is more interested to be plotted,

Best,

Habib

--

Kathy Fallon Lambert

Science & Policy Integration Project Director

Harvard Forest, Harvard University

Director, Science Policy Exchange

Office: [802-436-1000](tel:802-436-1000)

Cell: (b) (6)

[klambert01@fas.harvard.edu](mailto:klambert01@fas.harvard.edu)

[www.science-policy-exchange.org](http://www.science-policy-exchange.org)

--

Kathy Fallon Lambert

Science & Policy Integration Project Director

Harvard Forest, Harvard University

Director, Science Policy Exchange

Office: [802-436-1000](tel:802-436-1000)

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[klambert01@fas.harvard.edu](mailto:klambert01@fas.harvard.edu)

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--

Kathy Fallon Lambert

Science & Policy Integration Project Director

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Cell: (b) (6)

[klambert01@fas.harvard.edu](mailto:klambert01@fas.harvard.edu)

[www.science-policy-exchange.org](http://www.science-policy-exchange.org)



## Purifoy, Tiffany

---

**From:** Shannon Leigh Capps <Shannon.Capps@Colorado.EDU>  
**Sent:** Tuesday, January 13, 2015 9:31 PM  
**To:** Kathy Fallon Lambert  
**Cc:** Templer, Pamela H; Habibollah Fakhraei (hfakhrae@syr.edu); Charles T Driscoll Jr; Herrick, Jeffrey  
**Subject:** Re: FW: w126 data extractions

Thank you, Kathy. I will email Steve from STI as necessary.

It is helpful to be refreshed on Jeff's comments as well. I will keep those links and his advice in mind while analyzing and writing.

Best,  
Shannon

--  
Shannon Capps  
Henze & Milford Groups  
University of Colorado Boulder

On January 13, 2015 at 7:27:44 PM, Kathy Fallon Lambert ([klambert01@fas.harvard.edu](mailto:klambert01@fas.harvard.edu)) wrote:

That sounds great to me, Shannon.

Please feel free to be in direct contact with STI, but if you need any help just let me know.

Thanks!

On Tue, Jan 13, 2015 at 8:55 PM, Shannon Leigh Capps <[Shannon.Capps@colorado.edu](mailto:Shannon.Capps@colorado.edu)> wrote:  
Thank you, Habib, Charley, Kathy.

Habib has provided the data I need for producing figures. I may need to confirm the source data (crops, trees) with STI before the text describing the calculations could be finalized, but this is certainly enough to start.

I will also visualize the results and plan to create a map of the percentage change as well as the W126 from the base scenario. I can provide those tomorrow. Then, I can write draft text for the results (by Jan 24). I can then include revisions and the methods by Jan 31. Does this seem reasonable?

Thanks,  
Shannon

--  
Shannon Capps  
Henze & Milford Groups  
University of Colorado Boulder

On January 13, 2015 at 6:49:07 PM, Kathy Fallon Lambert ([klambert01@fas.harvard.edu](mailto:klambert01@fas.harvard.edu)) wrote:

Charley and Habib,

I don't have a sense for the magnitude change either, but the patterns follow what we'd expect for these scenarios. I think Jeff Herrick (who I have copied here) suggested displaying the values in terms of the percent change from the reference case. That might be more intuitive.

What is the next step at this point? Shannon are you planning on reviewing the results and developing some draft text? If so, do you have what you need from us?

Great to see this coming together. I think the patterns of co-benefits for people compared to ecosystems could be very interesting to compare. The spatial pattern for pollution decreases are similar but the geographic distribution of the exposed ecosystems may be the inverse of the areas where there are high numbers of exposed people. If that is the case, looking at both may spread the benefits more evenly across urban and rural areas.

Best,  
Kathy

On Tue, Jan 13, 2015 at 2:32 PM, Charles T Driscoll Jr <[ctdrisco@syr.edu](mailto:ctdrisco@syr.edu)> wrote:

Habib, Thanks.

All, I do not have a feel for the magnitude of these values. Maybe Shannon has something that can help put these in perspective.

Cheers,

Charley

---

**From:** Habibollah Fakhraei [mailto:[hfakhrae@syr.edu](mailto:hfakhrae@syr.edu)]  
**Sent:** Tuesday, January 13, 2015 2:27 PM  
**To:** Charles T Driscoll Jr  
**Subject:** Re: w126 data extractions

Charley,

I checked inside the netCDF files, the w126 values were added as a parameter to these files. Sorry that I did not check it correctly. I have been prepared three maps (the attached maps) for the w126 values, the values are for the scenarios differences from the reference case.

Bests,

Habib

--

Kathy Fallon Lambert  
Science & Policy Integration Project Director  
Harvard Forest, Harvard University  
Director, Science Policy Exchange  
Office: [802-436-1000](tel:802-436-1000)  
Cell: (b) (6)  
[klambert01@fas.harvard.edu](mailto:klambert01@fas.harvard.edu)  
  
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[www.science-policy-exchange.org](http://www.science-policy-exchange.org)

## Purifoy, Tiffany

---

**From:** Sarofim, Marcus  
**Sent:** Tuesday, January 27, 2015 5:30 PM  
**To:** 'Stephanie Moore - NOAA Affiliate'; 'Beard, Charles B. (CDC/OID/NCEZID)'; 'John Jacobs - NOAA Federal'; Fann, Neal; 'Dave Mills'; 'monaghan@ucar.edu'; Ken Kunkel - NOAA Affiliate; Eisen, Rebecca J. (CDC/OID/NCEZID); Ilacqua, Vito; Kinney, Patrick L.; Schwartz, Joel; Lamson, Amy; Susan Anenberg; 'mil724@mail.harvard.edu'; suka.ysj@gmail.com; steve.kibler@noaa.gov  
**Cc:** Crimmins, Allison; Jantarasami, Lesley; John.Balbus@nih.gov  
**Subject:** Abstracts for APHA

Dear Modeling Authors,

### Short Version:

We would like to submit abstracts for the upcoming APHA meeting based on the modeling studies from the climate and health assessment. Step one is to identify one author from each modeling study to be a presenter.

### Long Version:

The Steering Committee thinks it would be good to have a session at the APHA Annual Meeting (Oct 31-Nov 4 in Chicago) where we can present the results of as many of the 6 modeling studies as we can organize (and maybe an overview presentation on the overall assessment as well). While efforts are underway to actually organize an invited session, it would be best to move forward with the assumption that we will need to submit individual abstracts. This email is intended to gauge interest and to begin organization.

### Key details:

<https://apha.confex.com/apha/143am/oasys.epl>

Abstract deadline (assuming no invited session): February 9-13

Section for Submission: Environment

Cost & Funding: We are providing no funding for travel or registration. I do not believe there is a submission fee, but before the conference, the presenting author must become an APHA member and register for the Annual Meeting by the pre-registration deadline.

We suggest ending each abstract with the sentence, "This research is highlighted in the upcoming USGCRP report: Impacts of Climate Change on Human Health in the United States: A Scientific Assessment" in order to hopefully tie the abstract together so that even in the absence of an invited session, we stand a good chance of being grouped together.

Below, I've listed the author teams for each of the 6 modeling studies (with the exception of Kibler et al., as I don't have that list). A number of the authors from the studies are copied on this email (indicated with asterisks below). Ideally, each author team would nominate a submitting/presenting author who would coordinate within their team and then work with me for any consistency issues between abstracts.

Please let me know if you have any questions, concerns, or thoughts. Otherwise, it would be great to have a submitting author from each team by this coming Monday (assuming each team is interested in sending someone to the meeting).

-Marcus Sarofim

Heat:

Authors: Schwartz\*, Lee\*, Kinney\*, Yang, Mills\*, Sarofim\*, Jones, Streeter, St. Juliana, Peers, Horton

Submitting author:

Air Quality 1:

Authors: Fann\*, Lamson\*, Anenberg\*, Wesson, Risley, Hubbell

Submitting author:

Air Quality 2:

Authors: Ilacqua\*, Dawson, Breen, Singer, Berg

Submitting author:

Vectorborne:

Authors: Monaghan\*, Moore\*, Sampson, Beard\*, Eisen\* (or Moore, Eisen, Monaghan, Mead?)

Submitting author:

Waterborne 1:

Authors: Jacobs\*, Moore\*, Kunkel\*, Sun

Submitting author:

Waterborne 2:

Authors: Kibler\*, ?

Submitting author:

## Purifoy, Tiffany

---

**From:** Charles T Driscoll Jr <ctdrisco@syr.edu>  
**Sent:** Wednesday, April 29, 2015 5:09 PM  
**To:** Hubbell, Bryan  
**Subject:** talk?  
**Attachments:** removed.txt

Bryan, I am in Boston given a presentation on our carbon analysis at BU. So I missed your call. I will be back tomorrow mid-morning (airline gods pending). Let me know if you want to arrange a time to talk.

Cheers,  
Charley

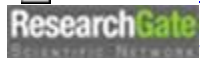
Charles T. Driscoll, Jr, PhD, NAE  
Distinguished Professor and University Professor of Environmental  
Systems Engineering  
Department of Civil and Environmental Engineering  
Syracuse University  
151 Link Hall  
Syracuse, NY 13244  
315-443-3434 (phone)  
315-443-1243 (fax)

[ctdrisco@syr.edu](mailto:ctdrisco@syr.edu)

Website: <http://www.lcs.syr.edu/faculty/driscoll/personal/index.asp>



[www.twitter.com/ctdrisco](http://www.twitter.com/ctdrisco)



[www.researchgate.net/profile/Charles\\_Driscoll](http://www.researchgate.net/profile/Charles_Driscoll)



## Purifoy, Tiffany

---

**From:** Hubbell, Bryan  
**Sent:** Wednesday, April 29, 2015 5:11 PM  
**To:** Charles T Driscoll Jr  
**Subject:** RE: talk?

I talked to Jonathan Buonocore and got the answer to my question (about the upcoming Nature article). I found out what I needed to know. Thanks for getting back to me.

Bryan

---

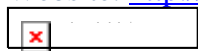
**From:** Charles T Driscoll Jr [mailto:ctdrisco@syr.edu]  
**Sent:** Wednesday, April 29, 2015 5:09 PM  
**To:** Hubbell, Bryan  
**Subject:** talk?

Bryan, I am in Boston given a presentation on our carbon analysis at BU. So I missed your call. I will be back tomorrow mid-morning (airline gods pending). Let me know if you want to arrange a time to talk.

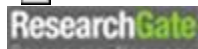
Cheers,  
Charley

Charles T. Driscoll, Jr, PhD, NAE  
Distinguished Professor and University Professor of Environmental  
Systems Engineering  
Department of Civil and Environmental Engineering  
Syracuse University  
151 Link Hall  
Syracuse, NY 13244  
315-443-3434 (phone)  
315-443-1243 (fax)  
[ctdrisco@syr.edu](mailto:ctdrisco@syr.edu)

Website: <http://www.lcs.syr.edu/faculty/driscoll/personal/index.asp>



[www.twitter.com/ctdrisco](https://www.twitter.com/ctdrisco)



[www.researchgate.net/profile/Charles\\_Driscoll](http://www.researchgate.net/profile/Charles_Driscoll)



## Purifoy, Tiffany

---

**From:** Reed Harris <RH@reed-harris.com>  
**Sent:** Thursday, April 30, 2015 11:24 AM  
**To:** About Pure Air Inc;Adams Doug;Aiken\_George (Aiken\_George);Alex Poulain;Amanda Poste;Anderson Robin;Ariya Parisa;Axelrad\_Don;Babiarz\_Chris;Bahia\_Manny;Barkay Tamar;Belerique\_Frank;Bhavsar\_Satyendra;Bigam Gary;Bill Touzel;Birgit Braune;Blanchfield\_Paul;Bob Harris;Bob Johnston;Branfireun\_Brian;Brenda Anstey;Brian Dimock;Brigham\_Mark;Britt Hall;Brown Heather;Bruce Monson;Burgess\_Neil;Campbell, Linda;Carlisle Rhonda;Carol DiGiorgio;Carol Kelly;Carter, James;Chandler, Jim;Charlie Alpers;Chemerys, Ruth;Chen\_Celia;Eckley, Chris;Knights, Chris;Chris Mahon;gmclark@usgs.gov;Clarke Trion;Cohen Mark;Darren Rumbold;Dastoor, Ashu;Dave Newton;David Bosworth;David Evers;David Marmorek;Diane Orihel;Dillon, Peter;Doeing\_Brian;Donna Mergler;Driscoll Charles;Duck, Roger;Dukhovskoy\_Dmitry;Dwayne Elias;Atkinson, Dwight;Dyer Jim;ceagles-smith@usgs.gov;Ellen Brown;Engstrom Dan;Hoffman, Erika;Ethier Adrienne;Evans David;Flanders\_JR;Flett\_Bob;Gary Gill;George Southworth;Geyer Rockwell;Gilmour Cindy;Glenna Stephens;Goodrich-Mahoney\_John;Grieb\_Tom;Grosso Nancy;Gustin, Mae;Hamilton, Chantal;Heard\_Karen;Heim\_Wes;Henry\_Betsy;Heyes\_Andrew;Hintelmann\_Holger;Holmes\_Christopher;Horvat\_Milena (Horvat\_Milena);Hrenchuk\_Lee;Hubacek Terry;Hudson\_Robert;Hunt\_Randy;Hurley\_Jim;Jamie Anderson;Jane Kirk;Jansen Wolfgang;Jeff Jeremiason;Jenny Graydon;Jesse Naymik;John Chetelat;John Hamrick;John Jansen;Kent James;Kidd\_Karen;Kondrat Todd;Krabbenhoft\_Dave;Kurlansky, Ellen;Lambeck\_Christopher;Landing\_Bill;Lasorsa\_Brenda;Laura Scheffler;Levin\_Leonard;Lindberg, Steve;Kissinger, Lon;Lucotte\_Marc;Mack Erin;Mae Gustin;Marc Amyot;Mark Peterson;Mark Sekela;mstephenson@mlml.calstate.edu;Marvin-DiPasquale\_Mark;Mason Robert;McBean Ross;McCarthy Jim;McCord\_Stephen;McGhee\_Karen;Meili, Markus;Mike Tate;Mitchell, Carl;Moore\_Susan;Morrison Heather;Muir Derek;Munthe\_John;murray@nwf.org;Murray Paterson;Nairn\_Rob;Harney, Nancy;Neil Kamman;Nicholas Fisher;Noel Boucher;Norris\_Paul;Orem, Bill;Parks\_John;Patrick Paul;Paul Johanson;Peter Dillon;Pirrone\_Nicola;Pizzuto\_Jim;Podemski\_Cheryl;Pollman Curt;Pope\_Greg;Poulain, Alex;Ptacek Carol;Rajar\_Rudi (Slovenia) ;Ralph Myers;Ralph Turner;Ralston, David;Randy Baker;Reash, Rob;Reible Danny;Robinson\_Rick;Roden Eric;Rodgers\_Dave;Roepert\_Uwe;Rolfhus\_Kris;Rudd John;Russell\_Cynthia;Sandhu, Prabhjot;Sarah Higer;Schoellhamer\_David;Shanley James;Shantz Phil;Simon Lewis;Slotton Darrell;Stefanie Morris;Steve Morey;Stewart Erin;Summers, Karen;Sunderland Elsie;Sutton, Dorothy;Swain\_Edward;Tara Smith;Tatolis\_George;Taylor, Denise;Ted Lange;Therrien\_Jean;Thomas Larry;Wool, Tim;Tremblay\_Alain;Trimper Perry;Trout House Marina Mountain;Vijayaraghavan, Krish ;Vince St\_Louis;Wiener\_James;Wilkinson Ken;Windham-Myers\_Lisamarie;Wolfgang Jansen

**Subject:** Email address

Hi,

Please note that I have changed my business email address to [RH@reed-harris.com](mailto:RH@reed-harris.com). I am phasing out my previous address, [reed@reed-harris.com](mailto:reed@reed-harris.com), due to problems with spam.



Thanks,

Reed

Reed Harris Environmental Ltd.

180 Forestwood Drive,

Oakville, Ontario

L6J4E6

Canada

Tel: 905 339 0763

(b) (6)

Email: [RH@reed-harris.com](mailto:RH@reed-harris.com)

[www.reed-harris.com](http://www.reed-harris.com)

## **Purifoy, Tiffany**

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**From:** onbehalf+erl+iop.org@manuscriptcentral.com on behalf of erl@iop.org  
**Sent:** Friday, May 22, 2015 4:36 PM  
**To:** iny@mail.harvard.edu;bcoull@hsph.harvard.edu;jschwartz@hsph.harvard.edu;Hubbell, Bryan;petros@hsph.harvard.edu  
**Subject:** Your submission to Environ. Res. Lett.: ERL-101477

Dear Dr Jhun,

Re: "The Impact of Weather Changes on Air Quality and Health in the United States in 1994-2012" by Jhun, Iny; Coull, Brent; Schwartz, Joel; Hubbell, Bryan; Koutrakis, Petros Article reference: ERL-101477

Thank you for your submission, which will be considered for publication in Environmental Research Letters, as a Letter. The reference number for your article is ERL-101477. Please quote this number in all future correspondence regarding this manuscript.

As the submitting author, you can follow the progress of your article by checking your Author Centre after logging in to <https://mc04.manuscriptcentral.com/erl-iop> Once you are signed in you will be able to track the progress of your article, read the referee reports and send us your electronic files.

Please do not hesitate to contact us if we can be of assistance to you.

Yours sincerely

Tom Slader

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Letter reference: SAu05

## Purifoy, Tiffany

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**From:** Hubbell, Bryan  
**Sent:** Tuesday, June 17, 2014 1:54 PM  
**To:** Kathy Fallon Lambert;Chappell, Linda  
**Cc:** Charles T Driscoll Jr  
**Subject:** RE: BenMAP analysis

Yes, that would be great.

**From:** Kathy Fallon Lambert [mailto:klambert01@fas.harvard.edu]  
**Sent:** Tuesday, June 17, 2014 1:35 PM  
**To:** Chappell, Linda; Hubbell, Bryan  
**Cc:** Charles T Driscoll Jr  
**Subject:** BenMAP analysis

Dear Linda and Bryan,

We are moving into the second phase of our carbon standards co-benefits analysis that will involve BenMAP modeling. When we get to the point of finalizing input parameters and assumptions, would it be useful to set up a call to share that with you? Ellen Kurlansky suggested you might be interested.

Thanks,  
Kathy

--

Kathy Fallon Lambert  
Director of the Science & Policy Integration Project  
Harvard Forest, Harvard University  
Office: 802-436-1000  
Cell: (b) (6)  
[klambert01@fas.harvard.edu](mailto:klambert01@fas.harvard.edu)